

CLAIMS

1. A pressure indicator for indicating a pressure difference between a pressure P_1 of a first chamber and a reference pressure, said indicator comprising a pressure chamber having a sidewall with an inflexible first wall part arranged at a distance from a flexible second wall part, the pressure chamber containing a fluid under influence of the reference pressure, the second wall part being arranged to separate the fluid from the first chamber and to deflect upon a pressure difference between P_1 and the reference pressure, said deflection changing the distance between the first and second wall parts thereby displacing the fluid in the pressure chamber characterised in that the indicator further comprises a flexible third wall part separating the pressure chamber from a second chamber, the second chamber holding a pressure P_2 .
2. An indicator according to claim 1, wherein the pressure chamber comprises a first compartment adjacent the second wall part and a second compartment adjacent the third wall part, and a connecting channel providing fluid communication between the first and second compartments.
3. An indicator according to any of the preceding claims, wherein the second and third wall parts have equal surface areas towards the first and second chambers, respectively.
4. An indicator according to any of the preceding claims, wherein the second and third wall parts have equal stiffness.

5. An indicator according to any of the preceding claims, wherein the second and third wall parts are arranged in congruent planes.
6. An indicator according to claim 5, wherein first wall
5 part is arranged adjacent to, and in a plane which is parallel to the planes of the second and third wall parts.
7. An indicator according to any of the preceding claims, wherein at least one of the second wall part and the third wall part, relative to the fluid, is substantially
10 transparent to electromagnetic radiation within a specific wavelength.
8. An indicator according to claim 7, further comprising illuminating means for projecting electromagnetic radiation within the specific wavelength from an outer side surface of the second wall part, through the second or third wall part, through the chamber and out of the chamber through the first wall part.
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9. An indicator according to any of the preceding claims, having a stacked configuration comprising a first layer made of glass and a second layer made of silicon.
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10. An indicator according to claim 9, further comprising a third layer made of glass.
11. An indicator according to claim 10, wherein the first and third layers have substantially plane surfaces towards
25 the second layer and the second layer has a first surface structure towards the first layer and a second surface structure towards the third layer, wherein the first

surface structure forms the pressure chamber and the second surface structure forms the first chamber.

12. An indicator according to claim 11, wherein the second wall part is formed integrally in the second layer.

5 13. An array of indicators according to any of the preceding claims and formed in a three layer structure comprising two glass layers arranged on each side of silicon layer.

10 14. A method of making a pressure indicator having a stacked configuration comprising a first layer made of glass, a second layer made of silicon, and a third layer made of glass, wherein the first and third layers have substantially plane surfaces towards the second layer and the second layer has a first surface structure towards the first layer and a second surface structure towards the third layer, wherein the first surface structure forms the pressure chamber and the second surface structure forms the first chamber, the method comprising the step of forming the first surface structure by etching.

20 15. A pump with an inlet and an outlet and comprising an indicator according to any of claims 1-12 arranged with the first chamber in fluid communication with the inlet and the second chamber in fluid communication with the outlet to obtain indication of pressure difference between
25 the inlet and the outlet of the pump.

AMENDED CLAIMS

[Received by the International Bureau on 01 November 2004 (01.11.2004)
original claim 1 amended, claims 7, 14 deleted]

5 NEW CLAIMS - NOVEMBER 2004 - MARKED UP VERSION

1. A pressure indicator for indicating a pressure difference between a pressure P₁ of a first chamber and a reference pressure, said indicator comprising a pressure chamber (1) having a sidewall with an inflexible first wall part (2) arranged at a distance from a flexible second wall part (3), the pressure chamber containing a fluid under influence of the reference pressure, the second wall part being arranged to separate the fluid from the first chamber (5) and to deflect upon a pressure difference between P₁ and the reference pressure, said deflection changing the distance between the first and second wall parts thereby displacing the fluid in the pressure chamber, the indicator further comprising a flexible third wall part (23) separating the pressure chamber from a second chamber (25), the second chamber holding a pressure P₂, characterised in that at least one of the first, second and third wall part, relative to the fluid, is substantially transparent to electromagnetic radiation within a specific wavelength.
- 25 2. An indicator according to claim 1, wherein the pressure chamber comprises a first compartment adjacent the second wall part and a second compartment adjacent the third wall part, and a connecting channel providing fluid communication between the first and second compartments.

3. An indicator according to any of the preceding claims, wherein the second and third wall parts have equal surface areas towards the first and second chambers, respectively.
4. An indicator according to any of the preceding claims,
5 wherein the second and third wall parts have equal stiffness.
5. An indicator according to any of the preceding claims, wherein the second and third wall parts are arranged in congruent planes.
- 10 6. An indicator according to claim 5, wherein first wall part is arranged adjacent to, and in a plane which is parallel to the planes of the second and third wall parts.
7. An indicator according to claim 6, further comprising illuminating means for projecting electromagnetic
15 radiation within the specific wavelength from an outer side surface of the second wall part, through the second or third wall part, through the chamber and out of the chamber through the first wall part.
8. An indicator according to any of the preceding claims,
20 having a stacked configuration comprising a first layer made of glass and a second layer made of silicon.
9. An indicator according to claim 8, further comprising a third layer made of glass.
10. An indicator according to claim 9, wherein the first
25 and third layers have substantially plane surfaces towards the second layer and the second layer has a first surface

structure towards the first layer and a second surface structure towards the third layer, wherein the first surface structure forms the pressure chamber and the second surface structure forms the first chamber.

5 11. An indicator according to claim 10, wherein the second wall part is formed integrally in the second layer.

12. An array of indicators according to any of the preceding claims and formed in a three layer structure comprising two glass layers arranged on each side of
10 silicon layer.

13. A pump with an inlet and an outlet and comprising an indicator according to any of claims 1-11 arranged with the first chamber in fluid communication with the inlet and the second chamber in fluid communication with the
15 outlet to obtain indication of pressure difference between the inlet and the outlet of the pump.